

FIG. 3 is a perspective view of a motor housing 10 and impeller housing as shown in FIG. 1.

FIG. 4 is a perspective view of the impeller housing and impeller as shown in FIG. 1.

Detailed Description of the Invention

Referring to FIGS. 1-4, a method for cooling a motor in a blower housing assembly for furnaces according to one embodiment of the invention is shown. A motor cover or housing 10 is configured to encompass a motor 12 which comprises a shaft 14, rotor 16 and stator 18. Motor cover 10 has portions that define a shaft bushing 20 and mechanical fastener bores 22 for securing motor 12 to motor cover 10. Motor cover 10 has flanges 24 each of which has portions defining a fastener bore 26 for securing motor cover 10 to an impeller housing 28 which is configured to encompass an impeller 30 which is attached to shaft 14. Impeller 30 is situated in impeller housing 28 such that impeller 30 can freely rotate within said impeller housing 28.

On page 6, line 27 through page 7, line 18, please amend the paragraphs as follows:

Impeller 30 has a plurality of fins 34 which provide surfaces for directing incoming air from motor chamber 38 or exhaust gases from an attached furnace. The incoming air from the motor 12 flows through an inlet port 41 between the motor housing 10 and the impeller housing 28. The air then flows through at least one any size hole or aperture 36 located on the back plate 42 of the impeller 30 from the motor case 10 by rotation of the impeller 30.

The method of venting the air in furnaces according to the foregoing description results in a blower design that eliminates the need for an auxiliary fan (not shown) attached to shaft 14. In this method there is at least one hole or aperture 32 situated anywhere in a motor case or housing 10 that allows for air to enter the housing 10 to cool the bearings (not shown) of the motor 12 and the motor 12 itself in the motor case 10. The warm air flows across and around the motor 12 in the direction of the impeller housing 28 and through an inlet port 41 in the impeller housing 28. The air then flows

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through at least one any size hole or aperture 36 located on the back plate 42 of the impeller 30 from the motor case 10 by rotation of the impeller 30. The exhaust air from the impeller 30 is directed out of the outlet 43 of the impeller housing 28.

On page 8, lines 1-13, please amend the paragraph as follows:

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It is further possible to eliminate much of the heat that is generated in the vestibule of a furnace. Temperatures which typically reach 150°F can be reduced to 90°F by using the novel venting method. The blower can be sealed off to the furnace for fresh air intake. Optionally, the blower can be sealed off to the furnace door to allow for the total sealing of the inducer compartment to maximize blower efficiency. Such a configuration maximizes the drawing of motor heat into the impeller chamber and out the outlet 43 which is in fluid communication with the impeller housing 28. Also maximized is the elimination of the heat source near the furnace electronics which are at least partially contained in the furnace vestibule.

IN THE CLAIMS:

Please cancel original claims 1 and 2. Please add the following new claims:

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3. (New) A method of cooling a motor of a blower assembly used to expel exhaust gases from a furnace, the blower assembly having a motor housing for enclosing the motor and an impeller housing fixed to the motor housing and having an impeller chamber that receives an impeller mounted to a motor shaft of the motor, the method comprising the steps of:

forming at least one vent aperture in the motor housing such that cooling air can enter an open motor chamber formed by the motor housing through the vent aperture, the motor chamber being configured to receive the motor;

forming an inlet port between the open motor chamber and the impeller chamber such that cooling air can enter the impeller chamber from the motor chamber through the inlet port; and

rotating the impeller to both draw cooling air into the impeller chamber through the vent aperture in the motor housing to cool the motor and draw exhaust